REMARKS

Claims 29, 32, 34-54, 56, and 57 are pending. Claims 37 and 43-53 have been withdrawn from consideration. Claim 40 has been canceled. Claims 29, 32, 36, 38, 41, 56 and 57 have been amended. Claims 32, 39, and 54 have been allowed. Claim 36 was objected to as being dependant upon a rejected base claim, and is allowable with the above amendment placing it in independent form. Basis for the amendments to claims 38, 56 and 57 is at specification page 7, line 7 – page 8, line 18. The objections to claims 29, 32, 34-36, and 56 stated in paragraph 7 of the Office Action have been overcome by the claim amendments.

Claims 38, 42, 56, and 57 stand rejected under 35 USC § 102(b) as being anticipated by WO 20044472 (US Patent 6,280,825, Insley). This rejection has been avoided by the amendment to claims 38, 56 and 57.

There are substantial differences between the claims, as amended, and Insley. Insley does not have at least one gas permeable, water impermeable layer which is required by all the rejected claims. At Office Action page 3, the Examiner has said that, "Insley teaches the cap layer made of a non-porous polyethylene film which is exactly the same material Applicants use to form the gas permeable, water impermeable layer...." With all due respect, the fact that Insley's cap layer may be made of the same polymer as the gas permeable water impermeable layer of rejected claim 38 does not necessarily anticipate the layer of claim 38. Insley's cap layer is described as made of non-woven fabric which would normally be water permeable. It is not described in Insley as being water impermeable, and there is no reason for him to so describe it, since he is using it in an air filtration that is not in contact with a liquid water stream or body. The present invention relates to layered sheet constructions used in waste water treatment.

Insley's cap is also not described as gas permeable and water impermeable. At col. 4, line 6, Insley says that his cap can be made of stabilization filaments or strengthened nonwoven, which would indicate permeability to water. Therefore, the Examiner's conclusion (bottom of Office Action page 3) that Insley's cap layer is gas permeable and water impermeable is unsupported.

The gas permeable water impermeable layer of claims 38, 56 and 57 has now been specified as a microporous membrane by amendment. Although microporous membranes can be made from polyethylene, as can Insley's cap layer, Insley's cap layer is not made of a microporous membrane. Thus, the layer of the inventive layered sheet construction, as now claimed, is distinct from the

layers disclosed in Insley. The present inventors did not just recognize a different advantage of a material disclosed in Insley; they used a different material in a different construction.

Near the bottom of Office Action page 3, the Examiner has said that Insley's filtration array is useful as a room air cleaner or respirator, suggesting that the channels are for gas delivery. This assertion is specifically traversed. In many air cleaners, air traverses straight through the filter medium (in a direction normal to plane or face of the filter). It is not a foregone conclusion, nor is there any suggestion in Insley, that his channels are for purposes of delivering gas through a gas permeable, water impermeable layer (in order to support bacterial growth on that layer or for any other purpose).

Claims 29, 34, 35, 40, and 41 stand rejected under 35 USC § 103(a) as being obvious over WO 20044472 (Insley) in view of Jensvold US 6,153,097. This rejection is moot as to canceled claim 40 and is traversed as to the remaining claims.

Substantial differences distinguish claims 29 (from which 34 and 35 depend), and 41 from Insley and Jensvold. Neither reference discloses a gas permeable water impermeable layer comprising a microporous layer coated with a gas permeable polymeric coating (claim 29). Insley does not disclose the gas permeable water impermeable microporous membrane layer (in claim 38 from which claim 41 depends), and Jensvold discloses microporous membranes, but not as being water impermeable or in conjunction with a gas delivery layer. Neither reference discloses a gas delivery layer that comprises foam, woven or non-woven fabric (claim 41).

There is no reason for a skilled person to combine the teachings of Jensvold with Insley. Jensvold teaches a gas separation membrane device using hollow fiber membranes the purpose of which is to separate fluids such as gases (column 12, lines 19-31). Although Jensvold discloses a microporous membrane it is for a completely different purpose from Insley and from the present invention. Insley's article is a filter for such devices as furnaces (i.e., separating particulates from air), and the presently claimed layered sheet constructions are for membranes used in biological wastewater treatment intended to be in contact with an aqueous stream or body.

The Examiner has contended that it is reasonable to combine Insley and Jensvold because they both "are related to the technology of fluid separation" (Office Action pp. 5-6). This contention is traversed. Insley's filters separate fluid (gas) from solids (particles in the gas); whereas, Jensvold's internal staged permeator separates a mixed fluid feed stream into permeate

and retentate streams (Col. 2, ll. 7-14), but not solid particulates. Thus both patents are not in the technology of fluid separation. The present claims are in the field of wastewater treatment, e.g., membranes on which bacteria grow to remove pollutants. Therefore, it is not reasonable to combine Insley and Jensvold, and there is no reason why a person interested in Insley's filters (for such devices as air cleaners and furnaces) would look to Jensvold's internal, staged permeator (used in such processes as distillation and pervaporation, see col. 13, ll. 31-45) for materials to use in the Insley filters.

The high separation efficiency and cost effectiveness discussed in Jensvold (to which the Examiner has referred as providing motivation to combine the teachings of these patents, Office Action p. 6) are with reference to the efficiency and cost of fluid separation processes (e.g., separating the components of gas streams containing hydrogen, oxygen, helium, nitrogen, methane, carbon monoxide and carbon dioxide, see col. 2, ll. 14-17, col. 4, ll. 27-36). Improving efficiency and cost effectiveness of such processes give no motivation at all to modify articles like furnace filters.

The Examiner has said (Office Action p. 5) that, "Insley '824 teaches every element of the presently claimed subject matter except the gas delivery layer being formed from a material that is porous, and gas permeable." This assertion is specifically traversed. As shown above, Insley does not teach the gas permeable water impermeable layers recited in claims 29 and 38.

In order to arrive at the rejected claims from the teachings of Insley and Jensvold, one would have to:

- as to claim 29, use a water impermeable layer with a gas permeable polymeric coating despite the absence of such a layer in either Insley or Jensvold; and
- as to claim 41, use a gas permeable, water impermeable microporous membrane layer in conjunction with a gas delivery layer made of foam, woven or non-woven fabric, despite the lack of any disclosure in either reference of the application of such a foam, woven or non-woven material as a gas delivery layer.

These modifications would not be obvious to one of ordinary skill. Hindsight, with the benefit of knowing the present inventors' work, would be required in order to make them. Nothing in the art of record leads one to make these modifications.

In view of the above discussion, it is respectfully submitted that claims 29, 32, 34-39, 41-54, 56, and 57, as amended, are novel, non-obvious and in condition for allowance. Withdrawal of the rejections under 35 U.S.C. 102 and 103 are requested, and a notification of allowability is respectfully solicited. If any issues or questions remain the resolution of which the Examiner feels would be advanced by a conference with Applicants' attorney, he is invited to contact such attorney at the telephone number noted below.

Respectfully submitted,

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Date

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